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United States
Department of
Agriculture

Marketing and
Regulatory
Programs

Agricultural
Marketing
Service

Livestock and
Seed Program

Items of Interest in Seed

April 2007

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EDITOR'S NOTES

Welcome to another issue of the Items of Interest in Seed (IOI). In our continuing efforts to provide a publication that is both interesting and educational, this issue includes digital images for the first time.

Several articles that include digital images are Botanist Todd Erickson's article on inert florets, Agronomist Mike Lovelace's article on soybean hilum colors, and Plant Physiologist Yujia Wu's article on wheat seed variety testing. Another interesting article provided by our Testing Section covers sample dividing procedures. In addition, there are several articles about Federal Seed Act regulatory activity, particularly Seed Marketing Specialist Gene Wilson's article providing an overview of the Seed Regulatory and Testing Branch's (SRTB) purpose and function and Dr. Richard Payne's article on brand and variety names for labeling and advertising.

We encourage you to visit the SRTB Web site at <http://www.ams.usda.gov/lsg/seed.htm>. The Web site has a vast array of information including the capability to retrieve past issues of the IOI. Whether you are looking for information regarding service testing, State noxious-weed seed requirements, variety names, OECD Seed Schemes Program, USA Accredited Seed Laboratory, or the Accreditation Seed Sampling Program, you will find the information on our Web site. Most recently, we have added information regarding official samples for service testing; for customers who require testing of official samples, the Web site includes a list of seed samplers who are authorized to take official samples.

As the SRTB strives to become more creative with each issue of the IOI, we hope that you are finding the publication to be informative and useful.

Linda Vanderhoof
IOI Editor

UPCOMING FEDERAL SEED SCHOOLS IN GASTONIA, NC

The Seed Regulatory and Testing Branch will be hosting two 3½ -day Federal Seed Schools this year at our facility in Gastonia, NC: April 24-27 and July 31-August 3, 2007. The focus of both of these seed schools will be purity and identification of similar crop and weed species. Other topics such as the uniform blowing procedure and ryegrass fluorescence will be covered. Presentation of topics will be on a level appropriate for experienced seed analysts. Limited training in quality management systems and accreditation will also be part of these two upcoming Federal Seed Schools.

These seed schools are open to seed analysts from private and government seed testing laboratories. Enrollment at each of the seed schools will be limited to 20 participants due to the hands-on nature of the topics and one-on-one attention from the instructors. Participants from non-government laboratories will be charged a fee of \$112. For more information about these seed schools or to request a pre-registration form, please contact Botanist Patsy Jackson at patsy.jackson@usda.gov or Laboratory Supervisor Susan Maxon at susan.maxon@usda.gov.

AMS OFFERS ACCREDITATION

The Seed Regulatory and Testing Branch (SRTB) has worked with seed certifying agencies, State seed control officials, and the seed industry to develop a comprehensive ISO 9001 based quality management system allowing for the accreditation of entities for field inspection, sampling, and testing. These programs—the Accredited Field Inspection Program (AFIP), Accredited Seed Sampling Program (ASSP), and Accredited Seed Laboratory (ASL) program—are audited under the auspices of the Audit, Review, and Compliance Branch.

With these programs in place, an entity could label their seed or the service performed with a USDA Process Verified Program (PVP) shield. Recognition of this shield is increasing in both the United States and internationally as indicated by the recognition of the ASSP and ASL program by the Canadian Food Inspection Agency.

A recent audit of the SRTB facility led to its approval as a USDA Process Verified Program. The certificate of conformance received by the SRTB applies to all operations at its Gastonia, NC, location.

Limited training on quality management systems and these programs will be part of two upcoming Federal Seed Schools. The requirements for these programs are located on the SRTB Web site at <http://www.ams.usda.gov/lsg/seed.htm>.

For information regarding this article, contact the OECD Seed Schemes Program Manager Perry Bohn at (704) 810-7262; perry.bohn@usda.gov.

SRTB TO OFFER U.S. ACCREDITED CANADIAN GRADER CERTIFICATION

The USDA's Agricultural Marketing Service (AMS) has been in negotiations with the Canadian Food Inspection Agency (CFIA) to allow Association of Official Seed Analysts (AOSA) and Society of Commercial Seed Technologists, Inc. (SCST) accredited seed analysts to assign grades to U.S. seed destined for shipping into Canada. Recent negotiations with CFIA and changes in Canadian regulations are in the process of making this a possibility. This will allow U.S. certified seed to be tested by a seed laboratory accredited to Canadian standards and assigned a Canadian grade in the U.S. prior to shipping to Canada for sale.

AMS and CFIA will be conducting joint Canadian grader training on June 4, 2007 with the examination given on June 5, 2007, at Cody, WY, immediately prior to the annual AOSA/SCST meeting. There will be a charge of \$299 for each session. It is not required to attend the training in order to take the examination on June 5, 2007. Class size will be limited to the first 20 individuals who sign up and pay their registration fees.

To sign up for this training or for information regarding this article, contact the OECD Seed Schemes Program Manager Perry Bohn at (704) 810-7262; perry.bohn@usda.gov.

REVISION OF THE FEDERAL SEED ACT REGULATIONS

The Seed Regulatory and Testing Branch is currently in the process of updating the Federal Seed Act (FSA) Regulations (7 CFR Part 201) which regulates agricultural and vegetable seed in interstate commerce.

Suggestions are welcome regarding areas of the FSA regulations that need to be revised. Proposed revisions will be published in the Federal Register, with a request for comments.

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RECEIVED A WARNING LETTER? EXPECT A FOLLOW-UP

Interstate shippers who have less serious seed labeling violations and/or technical labeling violations typically receive a letter of warning. This letter simply states the facts regarding the shipment of seed, indicates the nature of the violation(s), and cites the relevant sections of the Federal Seed Act and Federal Seed Act Regulations.

While warning letters conclude the regulatory action regarding the pertinent violations, they hopefully encourage the company to take steps to prevent the same violation from occurring again.

In an effort to follow-up on these letters of warning, at the end of each calendar quarter another letter is sent to every shipper who received a warning letter during that quarter. This letter is an attempt to provide the company with the opportunity to indicate what actions they have taken to correct and/or prevent a recurrence of the same problem. It also provides to us at the Seed Regulatory and Testing Branch an indication that the shipper is making an effort to comply with existing laws and regulations.

For information regarding this article, contact Seed Marketing Specialist Gene Wilson at (704) 810-8888; gene.wilson@usda.gov.

PLANT DOCTOR'S PROGNOSIS

The Association of Official Seed Analysts (AOSA) and Society of Commercial Seed Technologists, Inc. (SCST) Germination and Dormancy Subcommittee would like to expand definitions and descriptions in the abnormal seedling portion of the Seedling Evaluation Handbook section of the AOSA Rules for testing seeds.

One of the definitions of an abnormal seedling is one that has a pathogenic infection (Seedling Evaluation Handbook, section 3.4.8). No statement is made about saprophytic microorganisms which can grow from the seed coat, especially when seed are not treated with a fungicide. The analyst is asked to differentiate between primary and secondary infection (section 3.5.5).

The AOSA/SCST Germination and Dormancy Subcommittee, chaired by Dr. Riad Baalbaki, has asked the AOSA/SCST Seed Pathology Subcommittee to cooperate on this project. Seed Regulatory and Testing Branch Plant Pathologist Sandra Walker is chairperson of the Seed Pathology Subcommittee. Dr. Baalbaki is Associate Botanist at the Plant Pest Diagnostics Branch of the California Department of Food and Agriculture in Sacramento.

We would like to have photographs that illustrate primary and secondary infections on germinating seedlings, photographs that illustrate specific pathogenic infections or saprophytes on germinating seedlings, and photographs of the fungi with identifying characteristics such as conidia on seeds or seedlings. Any photographs submitted should contain all pertinent information about the seed and the infectious agent as well as logos or other information identifying their origins and will be attributed to the originator. Photographs may be submitted to RBaalbaki@cdfa.ca.gov or sandra.walker@usda.gov.

For information regarding this article, contact Plant Pathologist Sandra Walker at (704) 810-7268; sandra.walker@usda.gov.

NEW SRTB GREENHOUSE

The Seed Regulatory and Testing Branch (SRTB) is in the process of having a greenhouse constructed on site. The greenhouse will consist of over 1000 square feet of space for growing plants. Supplemental lighting, cooling, heating, and irrigation will be electronically controlled to

suit any growing environment. A headhouse is attached to the greenhouse to facilitate planting and maintaining samples in the greenhouse.

One objective of the greenhouse is to provide more space for growing out Federal Seed Act complaint samples submitted by various State seed control programs. Another objective is to conduct small scale trueness-to-variety tests in the greenhouse. In addition, the SRTB also plans to grow and maintain populations of various crops that are without biotech-derived traits.

The greenhouse should be fully functional by this summer.



Figure 1 - SRTB greenhouse under construction in Gastonia, NC.

For information regarding this article, contact Agronomist Mike Lovelace at (704) 810-7261; michael.lovelace@usda.gov.

QUESTIONS AND ANSWERS

Q. What is the correct way to label a coated seed product?

A. There appears to be three ways coating material can be shown on the seed label.

Section 201.5b of the Federal Seed Act Regulations states, in part: "The percentage of coating material shall be included with the inert matter percentage." This presents two possibilities:

- (1) Include the percentage of coating material with the percentage of other inert matter as a single percentage (30.00% Inert Matter).
- (2) Include the percentage of coating material in the total inert matter with a qualifying statement (30.00% inert matter of which 29.50% is coating material).

Section 2.13f.(5) of the Association of Official Seed Analysts (AOSA) Rules for Testing Seed lists five component parts for the purity separation of coated seed. They include: (a) kind or cultivar considered pure seed; (b) other crop seed; (c) inert matter; (d) weed seed; (e) coating material. This section would appear to permit a third possibility involving a five-part purity with the percentage of inert matter and the percentage of coating material being labeled separately.

Q. If I am a seed company selling flower and vegetable seeds what should be on the label? Are the label changes necessary if the packets are sold directly to growers and/or to other companies that will re-package?

- A. The Federal Seed Act (FSA) regulates agricultural and vegetable seeds shipped in interstate commerce. The FSA does not regulate flower, tree, or shrub seeds. Agricultural and vegetable seeds are subject to the FSA even if the seed is shipped directly to growers or other companies for repacking.

Required labeling of vegetable seeds in containers of more than one pound:

- The name of each kind and variety. If two or more kinds or varieties are present, the percentage of each. Hybrid seed must be so designated on the label.
- Lot number or other designation.
- For each kind and variety:
 - The germination percentage;
 - The hard seed percentage, if present;
 - The month and year the germination test was completed;
 - Name and address of the interstate shipper or the name and address of the person to whom the seed was sold (for resale) and the interstate shipper's code designation or AMS number.

Required labeling of vegetable seed in containers of one pound or less with germination equal to or above the standard in Section 201.31 of the FSA Regulations:

- The name of each kind and variety. If two or more kinds or varieties are present, the percentage of each. Hybrid seed must be so designated on the label.
- Name and address of the interstate shipper or the name and address of the person to whom the seed was sold (for resale) and the AMS number of the interstate shipper.

Required labeling of vegetable seed in containers of one pound or less with germination less than the standard in Section 201.31 of the FSA Regulations:

- The name of each kind and variety. If two or more kinds or varieties are present, the percentage of each.
- For each kind and variety:
 - The germination percentage;
 - The hard seed percentage, if present;
 - The month and year the germination test was completed;
 - The words "Below Standard" (no small than 8 point type);
 - Name and address of the interstate shipper or the name and address of the person to whom the seed was sold (for resale) and the AMS number of the interstate shipper.

These requirements can be found in Section 201(b) of the FSA and Sections 201.25 through 201.31 of the FSA Regulations.

Q. What are the Federal Seed Act (FSA) requirements for selling seeds on the Internet?

- A. Seed purchased over the Internet and shipped in interstate commerce is considered subject to the same requirements of the FSA as any other seed shipped in Interstate commerce. In addition, seed advertised on the Internet is subject to the advertising requirements of the FSA.

For information regarding the Questions and Answers, contact Branch Chief Richard Payne at (704) 810-8884; richard.payne2@usda.gov.

WHEAT SEED VARIETY TESTING--AN IMPROVED METHOD USING ISOELECTRIC FOCUSING

Wheat (*Triticum aestivum* L.) is one of the main cereal crops in worldwide production today. It is not only an important crop for human consumption and animal feed, but is also a unique crop for industrial uses and various other products. Since many varieties are cultivated for many purposes around the world, wheat variety testing can be very important in identifying seed contamination and mislabeling.

A standard wheat variety test method using SDS-PAGE (sodium dodecyl sulfate-Polyacrylamide Gel Electrophoresis) was published by ISTA (International Seed Testing Association) in the **Handbook of Variety Testing**, 1992. SRTB Plant Physiologist Yujia Wu has recently developed a new process for testing wheat varieties using IEF (Isoelectric Focusing) technology. Dr. Wu uses a small vertical, polyacrylamide plate, IEF (Isoelectric Focusing) gel system along with Coomassie and esterase double staining to reduce time and therefore cost. Comparisons of SDS PAGE and IEF native gels show that IEF is a good alternative for wheat variety testing. The double-staining technique makes it easy to see and interpret the wheat protein banding patterns in the gel. See the Table 1 and Figure 2.

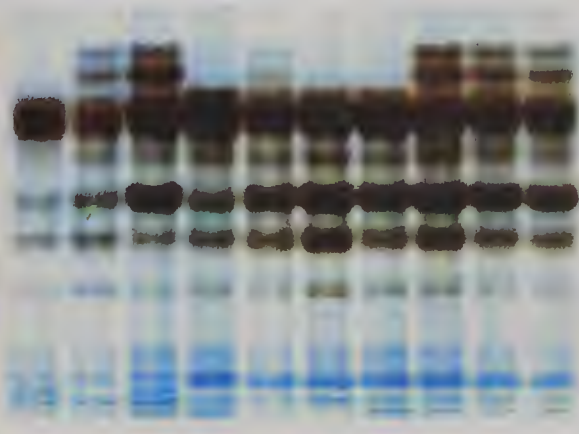
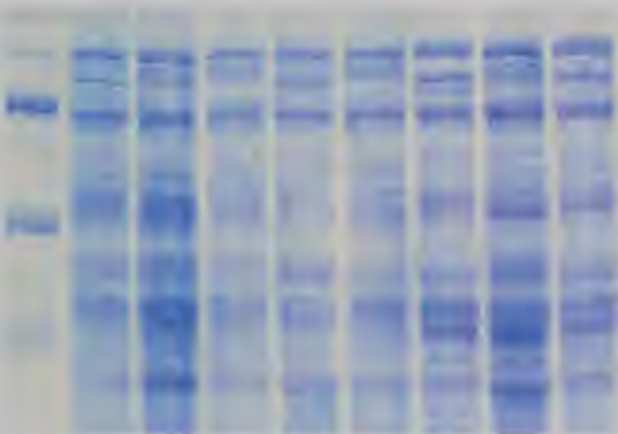
Table 1 SDS PAGE and IEF Gel Processing Comparison

Extraction	SDS PAGE Gel	IEF Gel
material	one seed	one seed
buffer	SDS buffer, phenol, methanol	IEF buffer only
extraction time 16 samples	4 hrs	0.5 hr
gel cost	same	same
gel running time/plate	same	same
gel staining	Coomassie	Coomassie and esterase
bands color	blue	blue and brown

Figure 2.

Std Coomassie Staining

Esterase and Coomassie Staining



SDS PAGE of Wheat Seed Protein

IEF Gel of Wheat Seed Protein

For information regarding this article, contact Plant Physiologist Yujia Wu at (704) 810-7267; yujia.wu@usda.gov.

THE IMPERFECT BLACK SOYBEAN HILUM

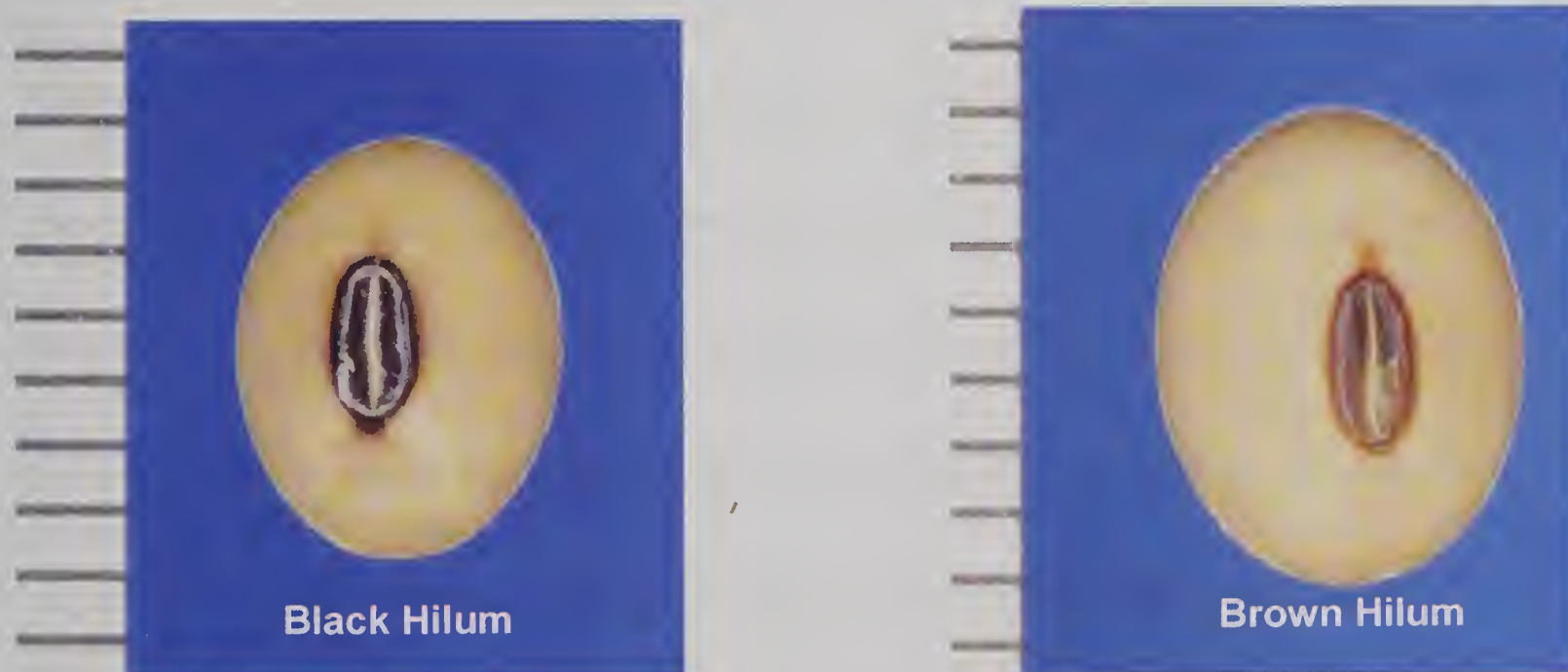
Soybean hilum color is a key classification characteristic used to describe soybean varieties. Hilum colors can be used to help identify a variety and determine varietal purity. Hilum colors are generally classified as black, imperfect black, dark brown, light brown, gray, buff, or yellow (clear) (Figure 3). Although these hilum colors seem self explanatory, some confusion still occurs when breeders classify the soybean hilum. Misclassification of hilum colors can lead to several problems. One major problem is obtaining certification for a seed lot from a State seed certifying agency.

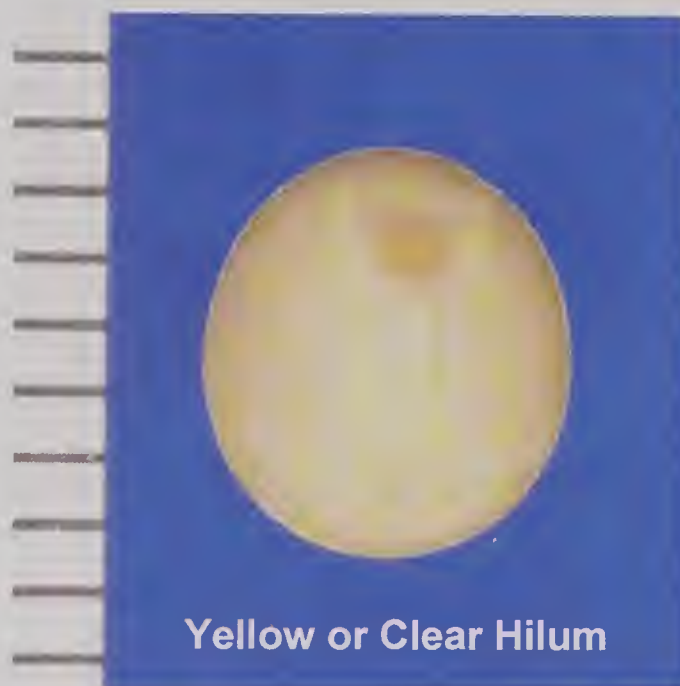
One common misclassification concerns the imperfect black hilum. This may arise due to lack of familiarity with the definition of imperfect black hilum. An imperfect black hilum is described as having black pigment confined more to the center of the hilum and surrounded by a narrow buff or brown band (Williams 1952). The amount of black and buff or brown present often varies among different varieties.

Before classifying a soybean hilum as imperfect black, several other characteristics should also be observed. Researchers have established that the imperfect black hilum in soybean is also genetically linked with gray pubescence and purple flowers (Owen 1928; Stewart 1930; Williams 1952). Thus in classifying a soybean with an imperfect black hilum, the pubescence and flower color should match the description. If the pubescence color is not gray and the flower color is not purple, the chances of having an imperfect black hilum are slim.

A seed producer can potentially lose a lot of money when a lot is rejected from a certification program. To avoid misclassification of hilum color or other characteristics, a breeder might consider sending samples of the soybean variety of interest to several qualified seed laboratories for input on classifying the characteristic. These additional inputs will help ensure that traits are correctly described and may be the difference between having a lot accepted or rejected while in a certification program.

Figure 3 - Illustrations of various soybean hilum colors. Ruler marks on the left side of each picture indicate millimeters.





Literature Cited

Owen, F.V. 1928. Inheritance studies in soybeans. III. Seed-coat color and summary of all other mendelian characters thus far reported. *Genetics*. 13:50-79.

Stewart, R. T. 1930. Inheritance of Certain Seed Coat Colors in Soybeans. *J. Agr. Res.* 40:829.

Williams, L.F. 1952. The Inheritance of Certain Black and Brown Pigments in the Soybean. *Genetics*. 37:208-215.

For information regarding this article, contact Agronomist Mike Lovelace at (704) 810-7261; michael.lovelace@usda.gov.

INERT FLORETS: FEDERAL SEED ACT VS. ASSOCIATION OF OFFICIAL SEED ANALYSTS RULES

Under the Association of Official Seed Analysts (AOSA) Rules for Testing Seeds, several kinds of grasses now require a caryopsis at least one-third the length of the palea in order to be considered pure seed, while florets with caryopses less than one-third the length of the palea are considered inert. The kinds involved include species of fescues, ryegrasses, wheatgrasses,

and smooth brome (see below for complete list). However, the Federal Seed Act (FSA) regulations still consider these kinds to be pure seed provided a caryopsis with some degree of endosperm development can be detected (see §201.48(g)). This can result in different purity percentages when the sample is tested by the FSA regulations as compared to the AOSA Rules. Test results by the AOSA Rules will tend to have a higher percentage of inert matter and a lower percentage of pure seed as compared to the same sample tested by the FSA regulations.

The Seed Regulatory and Testing Branch (SRTB) has been testing a number of grass samples which fall into the above category. When distinguishing between pure and inert seeds, our preferred laboratory method is to observe the seed over transmitted light from a diaphanoscope, combined with microscope magnification (see Figure 4). This method allows accurate determination of caryopsis size, without the potential of damaging the embryo or endosperm as can occur from the use of forcep pressure to estimate caryopsis size. When conducting purity tests on these species, SRTB categorizes the florets as follows: pure (Fig. A), inert, and immature (Fig. B). Immature florets have some degree of endosperm development, but the caryopsis is less than one third the length of the palea. These immature florets are therefore considered pure seed according to FSA rules and inert according to AOSA rules. By following this procedure, SRTB is able to evaluate the sample by both sets of rules.

Prior to the AOSA Rule changes, the AOSA pure seed definitions for these kinds were the same as those in the FSA regulations. There may be seed lots still on the market that were tested and labeled by the previous AOSA Rules. These lots may be subject to regulatory action by States that are testing by the current AOSA Rules. Until such time that the FSA regulations may be amended, the SRTB will take the AOSA rule changes into consideration whenever samples containing any of these kinds are submitted as alleged FSA labeling violations.

Florets with caryopses less than one-third the length of the palea are considered inert under the AOSA Rules for these species:

Effective October 1, 2005, for the following kinds:

smooth brome (*Bromus inermis*),
fairway crested wheatgrass (*Agropyron cristatum*),
standard crested wheatgrass (*Agropyron desertorum*),
tall wheatgrass (*Elytrigia elongata*),
intermediate wheatgrass (*Elytrigia intermedia* subsp. *intermedia*),
pubescent wheatgrass (*Elytrigia intermedia* subsp. *intermedia*),
western wheatgrass (*Pascopyrum smithii*),
hard fescue (*Festuca brevipila*),
red fescue (*Festuca rubra*),
chewings fescue (*Festuca rubra* subsp. *commutata*),
sheep fescue (*Festuca ovina*), and
hair fescue (*Festuca tenuifolia*).

Effective October 1, 2003, for the following kinds:

meadow fescue (*Festuca pratensis*),
tall fescue (*Festuca arundinacea*), and the
ryegrasses (*Lolium* spp.)

For information regarding this article, contact Botanist Todd Erickson at (704) 810-7266;
todd.erickson@usda.gov.

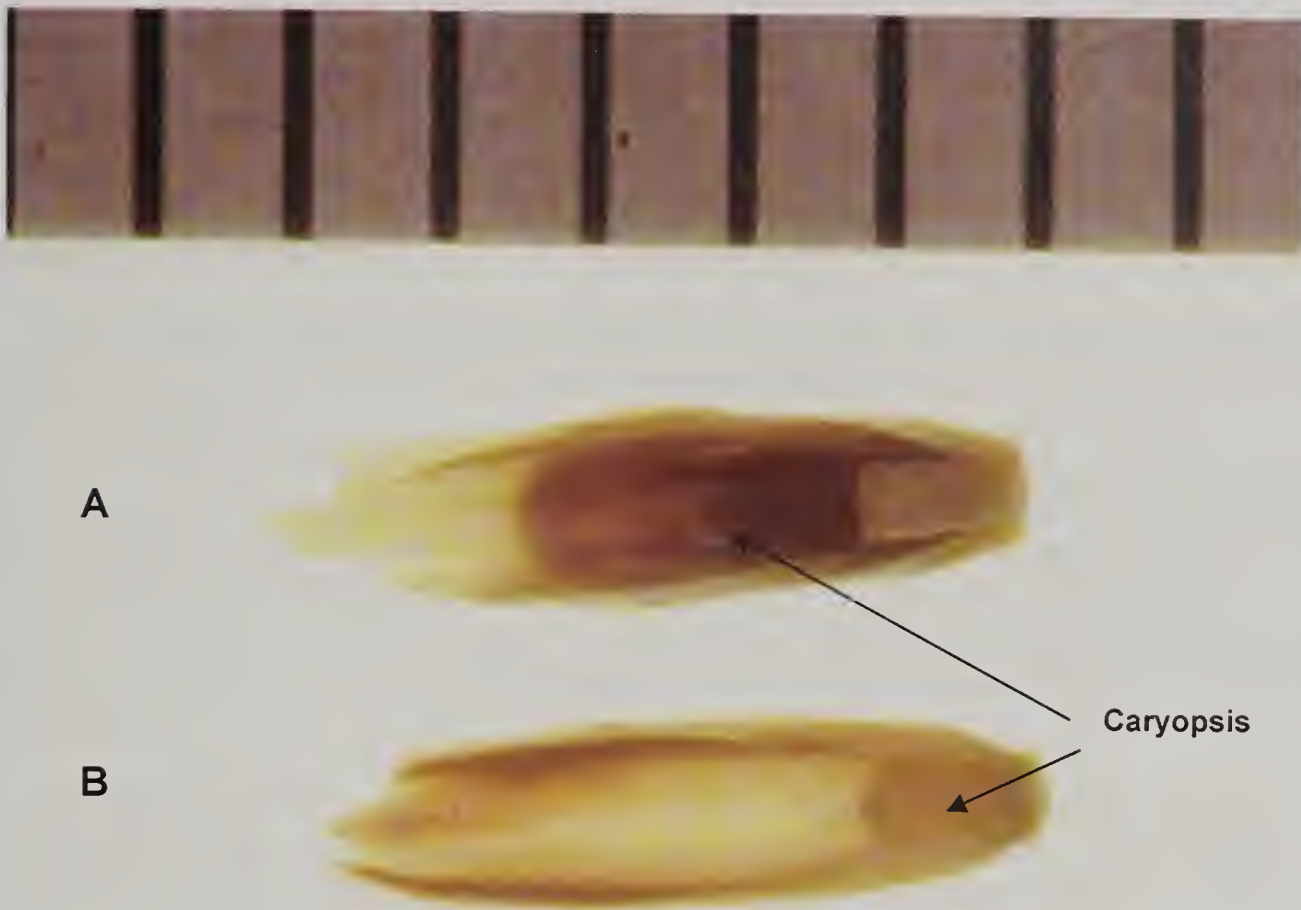


Figure 4 - Illustration of a mature (pure seed) ryegrass floret (A) and immature (caryopsis less than 1/3 length of palea) floret (B). The caryopsis is the translucent amber color portion of the seed. Ruler marks above the image of each picture indicate millimeters.

A SEED TECHNICIAN'S ADVENTURE IN FUNGICIDES

The Seed Regulatory and Testing Branch (SRTB) tests submitted seed samples in the same condition in which they are received, whether they are treated with fungicides or not. We receive seeds that are treated with different fungicides and pesticides on a daily basis from various seed companies and States. For safety reasons, treated samples should be submitted in non-porous containers. The name of the treatment substance should be clearly indicated on the packaging and on the accompanying paperwork. This information enables SRTB staff members to handle the samples with appropriate safety precautions. Our laboratory, including the sample log-in area, is equipped with exhaust hoods, and SRTB employees use gloves and other personal protective equipment when handling treated seed.

For information regarding this article, contact Biological Laboratory Technician Nicole Abrams-Kelly (704) 810-8882; Nicole.Abrams-Kelly@usda.gov.

SAMPLE DIVIDING: ONE OF THE TWO MOST IMPORTANT STEPS IN SEED TESTING

Seed analysts agree that the most important part of seed testing is obtaining a representative sample. No matter how carefully tests are performed, the results are invalid if the sample is not representative of the entire lot. The first important step is the initial sampling that occurs at the seed company or storage facility. When this initial sample reaches the lab, it usually requires sub-sampling or dividing, which is the second most important step in the process. Since dividing is performed in the laboratory by trained seed analysts, we can expect it to be carried out in a careful and unbiased manner. But like all repetitive tasks, dividing can become routine,

so an occasional review of proper procedures is a good idea. (For a review of sampling, see the IOI article series “Triers, Probes, and Automatic Seed Samplers” in the May 2005, October 2005, and April 2006 issues.)

The Federal Seed Act requirements for sub-sampling are stated in the Federal Seed Act Regulations, Part 201 as follows:

“201.45 Obtaining the working sample.--(a) The working sample on which the actual analysis is made shall be taken from the submitted sample in such a manner that it will be representative.

(b) The sample shall be repeatedly divided to the weight to be used for the working sample. Some form of efficient mechanical divider should be used. To avoid damaging large seeds and coated seeds, a divider should be used which will prevent the seeds from falling great distances onto hard surfaces. In case the proper mechanical divider cannot be used or is not available, the sample shall be thoroughly mixed and placed in a pile and the pile shall be repeatedly divided into halves until a sample of the desired weight remains.”

Dividing in the Federal Seed Lab is usually performed using Boerner (conical) and Gamet (centrifugal) dividers with occasional use of soil dividers (riffle) and the manual halving method. The applicable procedures and precautions listed below are followed to insure analyst safety and a representative working sample.

- Make sure dividers are calibrated on a regular basis.
- Use designated dividers for treated or untreated seed.
- Operate the fume hood or exhaust system when dividing and wear a dust mask if needed. Wear protective gloves and lab coat or apron when handling treated seed.
- Carefully clean the divider, receiving pans, and areas around the divider and balance, both before and after each use. Take special care after dividing small seeds such as bermudagrass and Agrostis species which can lodge in small spaces and are hard to see in the divider. After cleaning, inspect and re-clean if any debris is present.
- Check the divider to make sure it is level and adjust if necessary.
- Record each sample in the divider log book.
- Thoroughly mix the submitted seed by running the entire sample through the divider at least twice before starting the dividing process. This means the sample is recombined after each of the two run-throughs. The third run-through starts the actual dividing process. Chaffy seeds and mixtures may require additional mixing prior to dividing.
- When mixing, pour seeds simultaneously and evenly from both receiving containers into the center of the hopper.
- When using a Gamet divider, pour seeds into the hopper before turning on the motor. When using a Boerner divider, pour seeds into the hopper before opening the release-gate at the base of the hopper.
- When using a soil divider, make sure to pour the submitted sample into the pan so that it spreads evenly along its entire length.

- If seeds are spilled during the dividing process, discard them. Do not recombine spilled seed.
- Divide successively by passing the mixed sample through the divider, removing half each time until a working sample of the desired weight is obtained. The desired weight is normally slightly more than the minimum weight specified in the Federal Seed Act Regulations or other rules being followed.
- If a sample has been divided to a point where a small amount of seeds is needed to obtain the necessary weight, run the unused portion of the divided seed successively through the divider until the needed amount is obtained. Never manually transfer seeds from the unused portion to the working sample.
- After dividing, clean the equipment and surrounding area to remove all debris and stray seeds.

An accurate test result is important to both the seed producer and the consumer. Each step in seed testing must be properly carried out to achieve an accurate, meaningful result. By carefully following proper dividing procedures to insure representative samples, the seed analyst is fulfilling a crucial step in this process.

For information regarding this article, contact Botanist Sandy Dawson at 704-810-7270; sandy.dawson@usda.gov.

AN OVERVIEW OF THE SEED REGULATORY AND TESTING BRANCH: ITS PURPOSE AND FUNCTIONS

Seed is the basis for much of agriculture as almost all crop production relies on seed for its beginning. Whether for commercial production, subsistence farming, or the myriad gardens, seed is an essential input.

Commerce in seed, both domestically and internationally, has risen dramatically in the past century. Both the development of hybrids and the advent of seeds with genetically enhanced traits have served as catalysts in this growth. In fact, the commercial world seed market in recent years has been estimated by the International Seed Federation at approximately 30 billion dollars and the domestic U.S. market at approximately 6 billion dollars.

Clearly for the best results it is imperative that the seed trade operate in an economically efficient manner. USDA attempts to ensure both fairness and efficiency in the seed trade, providing to consumers, producers and others in the industry assurance regarding the quality of seeds.

A variety of USDA agencies and organizations are involved in this effort. The one whose entire purpose is related to seeds, however, is the Seed Regulatory and Testing Branch (SRTB) of the Livestock and Seed Program, Agricultural Marketing Service, United States Department of Agriculture.

SRTB's purpose, as indicated in its mission statement, is to "provide the global seed community and seed buyers with a service that promotes the truthful marketing of seed." In the accomplishment of that, SRTB is the focus point of a number of services and requirements affecting seed commerce and the seed industry in general.

Summary of SRTB Activities

- A major function of the SRTB is to enforce the Federal Seed Act (FSA), which regulates interstate commerce in seed.
- SRTB operates the Federal Seed Laboratory which conducts both regulatory and service testing of seed.
- Much of the service testing is for seed which is to be exported. In addition, physiology, agronomy, and pathology labs offer testing in their respective specialties.
- It oversees the US OECD Seed Schemes.
- SRTB offers the opportunity, in cooperation with the Audit, Review, and Compliance (ARC) Branch, for field inspectors, samplers, and seed laboratories to become accredited under the Process Verified Program-Seed.
- SRTB ensures accurate variety labeling by checking variety names and conducting trueness-to-variety tests.
- SRTB is developing and implementing a system for accrediting individuals to assign grades to seed being exported to Canada.
- It serves, through this publication and other avenues, as a source of information regarding seed issues.
- It offers training through seed schools, sampling workshops, and other avenues.

Enforcing the FSA

The FSA regulates the interstate shipment of agricultural and vegetable seeds. It does this by requiring that seed shipped in interstate commerce be labeled with information that allows seed buyers to make informed choices. As such, seed labeling information and advertisements pertaining to the seed must be truthful. In fact, the FSA has been called a “truth-in-labeling” law. The SRTB is tasked with enforcing, and in fact was created to enforce, this Act.

The regulatory system operates in conjunction with State seed control officials. Cooperative Agreements have been signed between USDA and all 50 States allowing for this cooperation. State seed inspectors routinely inspect and sample seed shipments being marketed in their States. Most complaints are, in turn, submitted by State seed control officials although they may be submitted by anyone.

By enforcing the FSA, SRTB helps to promote uniformity among State laws, encourages fair competition within the seed trade, and supports the State regulatory efforts. In furtherance of these efforts, SRTB conducts training for State seed analysts, provides seed sampling workshops, and serves as a source of information to States, seed organizations, or the seed industry about regulatory matters and other seed related issues.

Testing Seed: The Federal Seed Laboratory

The Federal Seed Laboratory performs two major functions. It tests seed samples that are submitted, usually by state seed control officials, for possible violation of the Federal Seed Act. As such it conducts primarily purity, germination, or noxious-weed seed tests. In this respect it operates in support of FSA enforcement.

Its second major function is the service testing of seeds. The main purpose for testing agricultural and vegetable seeds is to encourage efficient marketing, and to assist in the development of new or expanding markets.

The FSL is accredited by the International Seed Testing Association and under the Accredited Seed Laboratory Program. The FSL is recognized as an unbiased authority for conducting tests on samples of seed destined for export to other countries.

Service testing results are reported on a Federal Seed Analysis Certificate (SAC). These certificates are accepted for the shipment of seed in international commerce.

Physiology, pathology, and agronomy labs offer specialized testing in their respective fields both in support of FSA enforcement and for service testing. The plant pathology laboratory, for example, conducts fee-for-service testing for pathogens as requested by the customer.

In support of its functions, the FSL conducts seed schools for training purposes. Recent schools have included varietal testing for state seed analysts.

Another aspect of the FSL is the maintenance of the Reserve Seed Collection. This collection of different seed species numbers more than 700. Seed samples from this collection are available upon request. Further information can be found on SRTB's website.

Facilitating International Trade: U.S. Organization for Economic Cooperation and Development Seed Schemes Program

The OECD Seed Schemes are rules used by 55 participating countries to certify and label seed for varietal purity for international movement.

USDA AMS is the Designated Authority responsible for implementing the OECD Seed Schemes in the US in cooperation with official seed certifying agencies. SRTB administers and manages the OECD Seed Schemes program. It assumed responsibility for day to day operations of the program on October 1, 2004.

At present, the U.S. participates in five of the seven groups of agricultural crops, i.e. grasses and legumes, crucifers and other oil or fiber species, cereals, fodder beets and sugar beets, and maize and sorghum.

Testing for OECD may be performed by the State seed certifying agencies, accredited seed laboratories, and other AMS-approved laboratories.

Inspection of fields and sampling may be performed by the State seed certifying agencies, accredited field inspectors and accredited seed samplers respectively, and other AMS-approved individuals/entities.

SRTB represents AMS as the voting member at the annual OECD Seed Scheme meeting. SRTB also participates actively on a number of working groups.

In 2006, the SRTB OECD office approved:

- over 113 million pounds of seed shipped under the OECD Seed Schemes
- 1627 varieties for acceptance into the OECD Seed Schemes
- over eleven hundred multiplications of basic and certified seed for a variety of crops in other countries

In cooperation with the seed certifying agencies, SRTB issued approximately 5800 OECD Certificates for international shipment of certified seed.

Facilitating Variety Labeling: SRTB Variety Programs

The SRTB maintains a Variety Name List containing variety names that have been used for agricultural and vegetable seeds. While not a complete listing of all variety names, the Variety Name List is intended to help prevent violations of the FSA in regard to naming varieties. Variety names are gathered from a number of sources including official journals, seed catalogs, seed trade publications, and variety release notices.

Also as a service, once a variety name has been chosen, the SRTB will review that name prior to the variety being marketed if requested to do so.

As part of its FSA enforcement activities, SRTB also conducts trueness-to-variety testing. This testing is for the purpose of verifying the varietal identity of seeds. It may involve growing the plants to maturity in field tests, partial or complete growout in the greenhouse, or pursue more technical avenues, such as electrophoresis.

Facilitating Seed Trade: Process Verified Program

In cooperation with the ARC Branch of LS AMS, SRTB administers three programs for the purpose of providing accreditation to field inspectors, seed samplers, and seed testing laboratories. These programs—the Accredited Field Inspection Program, the Accredited Seed Sampler Program, and the Accredited Seed Laboratory Program—are based on the Process Verified System of the Quality Systems Verification Program of AMS.

The objectives of these programs are to provide uniformity of procedures and methodology for inspecting fields and sampling and testing seed. Commerce in seed both domestically and globally should be enhanced through the standardization of processes.

Providing Information

SRTB strives to be a source of information through a variety of ways. Publication of the Items of Interest in Seed provides an avenue of information about SRTB activities, general seed issues, and up-to-date technical information. Through attendance at professional meetings, personnel provide additional regulatory and scientific information regarding seed-related matters. SRTB also regularly conducts training for seed analysts and seed inspectors.

Grading Seed for Canada

In recent months the SRTB has been active in developing and implementing a system for accrediting individuals in the U.S. for assigning grades to seed for export to Canada. In June 2007, training and testing of applicants will occur at the AOSA/SCST annual meeting in Cody, WY. Successful applicants will be recognized by the Canadian Food Inspection Agency as authorized graders.

Through all these activities, SRTB aims to carry out its mission in a way that benefits the seed community at large, both domestically and internationally.

For information regarding this article, contact Seed Marketing Specialist Gene Wilson at (704) 810-8888; gene.wilson@usda.gov.

BRAND NAMES AND VARIETY NAMES – LABELING AND ADVERTISING

Past issues of the Items of Interest in Seed (IOI) give detailed information regarding distinctions between variety names and brand names. One desired outcome of Federal Seed Act (FSA) enforcement is proper seed labeling that will be consistent and help the consumer accurately identify the products they are purchasing. Using brand and variety names interchangeably, in addition to being in violation of the FSA, can ultimately mislead the seed consumer.

A brand designation is generally used to identify the owner or seller of seed. Brand labeling is not specifically regulated under the Federal Seed Act. However, section 201.8 of the FSA Regulations states in part “The label may contain information in addition to that required by the Act, provided such information is not misleading.” This means that if brand designations are used in labeling, they cannot be misleading. To avoid being misleading, brand designations should be clearly identified as such when part of a seed label. In addition, using a variety name as a brand designation or as part of a brand designation would be considered misleading because this practice would imply varietal content of the labeled seed. A brand designation does not insure the varietal content of seed. In some instances the varietal content of a brand has changed from year to year and in cases of turf seed brands, even within the same year.

Section 201.36b(e) of the FSA Regulations deals with advertising and states in part, “Brand names and terms taken from trademarks may be associated with the name of the kind or variety of seed as an indication of source: Provided, that the terms are clearly identified as being other than part of the name of the kind or variety.” This means that when advertising seed by a brand name, the brand name must be clearly identified as such. Section 201.36b(e) of the FSA Regulations also states in part, “Seed shall not be advertised under a trademark or brand name in any manner that may create the impression that the trademark or brand name is a variety name.” This means that in advertising, a variety name cannot be used as a brand name or as part of a brand name.

Section 201.36b(e) of the FSA Regulations further states in part “If seed advertised under a trademark or brand name is a mixture of varieties and if the variety names are not stated in the advertising, a description similar to a varietal description or a comparison with a named variety shall not be used if it creates the impression that the seed is of a single variety. This means that a brand of seed containing several varieties cannot be compared to a single variety in an advertisement unless the varieties comprising that brand are also listed in that advertisement.

Section 101(19) of the FSA states “The term “advertisement” means all representations, other than those on the label, disseminated in any manner, relating to seed within the scope of this Act.” This section of the FSA has been interpreted to mean advertisement of all types, including seed company Internet Web sites. Therefore, the advertising requirements in the FSA Regulations that pertain to brands and varieties apply to those contained in seed company Internet Web sites.

For information regarding this article, contact Branch Chief Richard Payne at (704) 810-8884; richard.payne2@usda.gov.

AGRICULTURAL AND VEGETABLE KIND NAMES UNDER THE FEDERAL SEED ACT

Section 201.2(h) and (i) of the Federal Seed Act (FSA) Regulations contains lists of the agricultural and vegetable kinds that are regulated under the FSA. The Seed Regulatory and Testing Branch (SRTB) will be considering revising the FSA Regulations, and in doing so we will consider adding additional kinds to the agricultural and vegetable seed lists.

Several *Paspalum* species, such as bahiagrass, dallisgrass, and vaseygrass, are currently regulated by the FSA. It has been suggested that seashore paspalum (*Paspalum vaginatum* Sw.) should be added to the list of regulated agriculture kinds. For a new kind to be considered for addition to the FSA Regulations, there must be accompanying purity and noxious-weed seed working weights to be tested as well as germination testing procedures. The SRTB plans to update the FSA Regulations in the near future.

For information regarding this article, contact Seed Marketing Specialist Kevin Robinson at (704) 810-7264; kevin.robinson2@usda.gov.

MAINTAINING RECORDS AND FILE SAMPLES

Shippers of seed in interstate commerce, including seed companies, farmers, or others, are required by the Federal Seed Act (FSA) and Federal Seed Act Regulations (FSA Regulations) Part 201 to maintain records relating to that lot of seed for a required time period and supply those records upon request to USDA. This includes maintaining/supplying file samples.

Section 202 of the FSA states as follows: “All persons transporting, or delivering for transportation, in interstate commerce, agricultural seeds shall keep for a period of three years a complete record of origin, treatment, germination, and purity of each lot of such agricultural seeds, and all persons transporting, or delivering for transportation, in interstate commerce, vegetable seeds shall keep for a period of three years a complete record of treatment, germination, and variety of such vegetable seeds. The Secretary of Agriculture, or his duly authorized agents, shall have the right to inspect such records for the purpose of the effective administration of this Act.”

This is further expanded upon in the FSA Regulations in Section 201.4: “(a) Each person transporting or delivering for transportation in interstate commerce agricultural or vegetable seed subject to the Act shall keep for a period of 3 years a complete record of each lot of such seed so transported or delivered, including a sample representing each lot of such seed, except that any seed sample may be discarded 1 year after the entire lot represented by such sample has been disposed of by such person. (b) Each sample of agricultural seed retained shall be at least the weight required for a noxious-weed seed examination as set forth in section 201.46 and each sample of vegetable seed retained shall consist of at least 400 seeds. The record shall be kept in such manner as to permit comparison with the records required to be kept by other persons for the same lot of seed so that the origin, treatment, germination, and purity (including variety) of agricultural seed and the treatment, germination and variety of vegetable seed may be traced from the grower to the ultimate consumer and so that the lot of seed may be correctly labeled. The record shall be accessible for inspection by the authorized agents of the Secretary for purposes of the effective administration of the Act at any time during customary business hours.”

Interstate shippers who fail to comply with the above requirements will be in violation of the FSA and FSA Regulations. The results can vary from a letter of warning to charges which carry a monetary penalty. Companies which habitually fail to comply with the above will be subject to the more serious charges.

For information regarding this article, contact Seed Marketing Specialist Gene Wilson at (704) 810-8888; gene.wilson@usda.gov.

SUGGESTIONS FOR ITEMS OF INTEREST IN SEED

We welcome ideas or articles you feel should be included in this publication. If you wish to submit an idea or article, please write to us at:

Items of Interest in Seed
Seed Regulatory and Testing Branch
801 Summit Crossing Place, Suite C
Gastonia, North Carolina 28054-2193

We reserve the right to edit any or all parts of submitted articles as necessary to maintain the integrity of the publication.

CALENDAR OF EVENTS

Federal Seed School Gastonia, NC	April 23-27, 2007
International Seed Testing Association (ISTA) Congress Iguassu Falls, Brazil	May 4-12, 2007
International Seed Federation (ISF) Congress Christchurch, New Zealand	May 21-23, 2007
Joint Annual Meeting of the Association of Official Seed Analysts (AOSA) and the Society of Commercial Seed Technologists (SCST) Cody, WY	June 5-10 2007
American Seed Trade Association (ASTA) Annual Convention Denver, CO	June 23-27, 2007
Organization for Economic Cooperation and Development (OECD) Seed Schemes Annual Meeting Paris, France	July 9-12, 2007
Association of American Seed Control Officials (AASCO) Annual Meeting St. Paul, MN	July 14-17 2007
Association of Official Seed Certifying Agencies (AOSCA) Tunica, MS	July 22-25, 2007
American Phytopathological Society (APS) Annual Meeting San Diego, CA	July 28-Aug 2, 2007
Federal Seed School Gastonia, NC	July 31-Aug 3, 2007
Northeast Seed Analysts Workshop (NESAW) Location – TBD	September 2007*

Seed Regulatory and Testing Branch (SRTB)-sponsored training is shown in **bold**.

*Tentatively scheduled

For further information regarding the Calendar of Events contact Branch Secretary Winston Robinson at (704) 810-8871; winston.robinson@usda.gov

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FEDERAL SEED ACT CASES SETTLED

The following cases were settled administratively under the Federal Seed Act between September 1, 2006, and March 14, 2007. Under the administrative settlement procedure, the Seed Regulatory and Testing Branch and the firms agreed to settle the cases for the amount specified, with the firms neither admitting nor denying the charges. Official Program Announcements on each of these cases are accessible on the following Web site:

<http://www.ams.usda.gov/news/newsrel.htm>.

Cenex Land O'Lakes, Inc. Ag Service, Fort Dodge, IA, has paid \$875 for a case involving three seed shipments into Maryland. The alleged violations, while not the same for all shipments, were false labeling as to varietal purity and failure to keep and/or supply a complete record of the seed. Seed regulatory officials in Maryland cooperated in the initial sampling and inspection.

Lake Valley Seed, Boulder, CO, has paid \$875 for a case involving three seed shipments into Indiana. The alleged violations, while not the same for all shipments, were false labeling as to germination percentage and failure to test for germination prior to interstate shipment. Seed regulatory officials in Indiana cooperated in the initial sampling and inspection.

Page Seed Company, Greene, NY, has paid \$975 for a case involving three seed shipments into New Mexico and Texas. The alleged violations, while not the same for all shipments, were false labeling as to germination percentage, failure to indicate the seed lot as a mixture, and failure to keep and/or supply a complete record of the seed. Seed regulatory officials in New Mexico and Texas cooperated in the initial sampling and inspection.

Pennington Seed, Inc., Madison, GA, has paid \$11,425 for a case involving eleven seed shipments into Georgia, Kentucky, Oklahoma, and Virginia. The alleged violations, while not the same for all shipments, were false labeling as to pure seed, inert matter, and germination percentages, rate of occurrence of noxious-weed seeds, kind name, variety name, and test date; failure to label the presence of noxious-weed seeds; and failure to keep required records including those establishing the kind and variety name. Seed regulatory officials in Georgia, Kentucky, Oklahoma, and Virginia cooperated in the initial sampling and inspection.

Texas Oklahoma Production Company, Enid, OK, has paid \$2,825 for a case involving three seed shipments to Arkansas and Texas. The shipment to Arkansas was reshipped into Texas where it was officially sampled. The alleged violations, while not the same for all shipments, were false labeling as to pure seed percentage, noxious-weed seed, and date of test; and failure to keep required records. Seed regulatory officials in Texas cooperated in the initial sampling and inspection.

RYEGRASS FLUORESCENCE LIST

The current ryegrass fluorescence list by the National Grass Variety Review Board is available on the following Web site:

<http://www.aosca.org/VarietyReviewBoards/Grass.html>

PLANT VARIETY PROTECTION CERTIFICATE STATUS

Check the status of certification and search for expired certificates by accessing the Plant Variety Protection Office's Web site and entering their Public Access Database:

<http://www.ams.usda.gov/science/pvpo/PVPindex.htm>.

"Bad seed is a robbery of the worst kind, for your pocket-book not only suffers by it, but your preparations are lost and a season passes away unimproved."

George Washington

(Contributed by Seed Regulatory and Testing Branch Botanist Sandy Dawson)

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The U.S. Department of Agriculture (USDA) is pleased to announce the release of the first issue of the National Agricultural Library's (NAL) new journal, *Journal of Agricultural and Food Research*. This journal is a new addition to the NAL's existing portfolio of publications, which includes the *Journal of Agricultural and Food Research*, the *Journal of Agricultural and Food Research*, and the *Journal of Agricultural and Food Research*. The journal is a new addition to the NAL's existing portfolio of publications, which includes the *Journal of Agricultural and Food Research*, the *Journal of Agricultural and Food Research*, and the *Journal of Agricultural and Food Research*. The journal is a new addition to the NAL's existing portfolio of publications, which includes the *Journal of Agricultural and Food Research*, the *Journal of Agricultural and Food Research*, and the *Journal of Agricultural and Food Research*.